

being traced. My own analysis of a sample taken from a 4-foot seam gives:

Fixed carbon . . . . .	62.6 per cent.
Volatile combustible matter . .	29.6 "
Ash . . . . .	7.8 "

If any considerable quantity of such a fuel as this can be found, it will dominate the steam coal trade from the Okanagan Lakes east to the Arrow Lakes, but it lies nearly 100 miles north of the Boundary District, and out of the route of the proposed railway, although it can only be a question of time until a branch is constructed up the Kettle River. Farther west we have two well-defined coal fields near Princeton and Nicola. The former, with Ashnola as its centre, is undoubtedly upon the route of any railway from the Boundary District to the Coast, as such a railway must pass up the Similkameen Valley at least as far as Princeton, whatever route it may take thence westwards. Here we have a well-defined coal basin, eight miles from east to west and ten to twelve miles from north to south. Many seams of lignitic coal outcrop, of which a fair average analysis gives:

Fixed Carbon . . . . .	42.0 per cent.
Volatile combustible matter .	42.7 "
Ash . . . . .	3.0 "

In the absence of a better fuel this would be used by the railway from the Boundary District to the Hepe Mountains. Only a month ago, however a 9-foot seam of good coal was bored through at a depth of 625 feet, which yielded:

Fixed carbon . . . . .	54 per cent.
Volatile combustible matter . .	23 "
Ash . . . . .	8 "

This is full of promise for the future and there are, doubtless, other seams of equal if not superior quality. Thus, the supply of an excellent steam coal for the Columbia and Kootenay is assured.

At Nicola (near which the projected railway will pass if it joins the main line of the C. P. R. at Spence's Bridge) there is an extensive coal field, probably of the same character as the Princeton basin, which would be easily available.

If in connection with these various sources of supply it be borne in mind that we have extensive coal mines in full operation on Vancouver Island, you will see that every part of the Province is well furnished with good steam fuel, and that the first essential for cheap transportation abounds wherever an important railway is likely to be constructed. I estimate that on the Canadian Northern the maximum haul of steam fuel within the Province will not exceed 250 miles; on the main line of the C. P. R., 200; and on the Crow's Nest line, 150. This should give fuel at an actual cost ranging from \$2.00 to \$3.00 a ton, a figure which would certainly be favourable for the development of the Province on the lines of cheap transportation. These figures take no account of other discoveries which will be made in the near future, as there are abundant evidences that there is a continuity in the coal seams of the Rockies, from Mexico to the Yukon; and there are few valleys of

British Columbia in which some traces of these does not exist.

**Smelting Fuel.**—We now have to consider the subject of smelting fuel and probably this will appeal more directly to our members because it "comes home." Without cheap and good smelting fuel the mining industry of British Columbia would come to a standstill. The men who were reviled in 1895 for pronouncing our ores "low grade" have had an ample revenge, and it is now not merely a proven, but an acknowledged fact. Transportation and treatment on Rossland ores have been reduced from \$13 to less than \$5 a ton, and shipping values from \$25 or \$30 or \$8 or \$10. To this result the Crow's Nest coal and coke have contributed not a little, having brought the delivered price of the former down from \$12 to \$4, and the latter from \$17 to \$6. During this period we have learnt many things, and some yet remain to be learnt. It must now be admitted that our ores are so low grade that every cent in cost tells and that to develop the industry will require the cheapest fuel that can be obtained. Take for example the great self-fluxing copper district, the Boundary. Is it taking too low an estimate to say that with the exception of a few rich chutes, which may run to \$7 or even \$8, the vast bodies of ore in that camp will not exceed \$4? If this is so, and if, as Dr. Ledoux says, fuel represents 65 per cent. of a total smelting cost of \$2, then every dollar saved in fuel would mean about 25 cents on the ton of ore treated, a sum which probably represents the difference between profit and loss, since it is admitted on all hands, and confirmed by the highest experts, that everything has been done in the way of appliances and economic management to reduce the cost of treatment to the lowest possible figure.

Let us enquire, then, how the future of smelting in British Columbia is likely to be affected by the fuel question. This practically resolves itself into the enquiry—how can smelting fuel be still further cheapened? There is only one way, by competition. This involves the development of other coal fields and the liberation of some portion of the Government coal lands in the Crow's Nest Pass.

First, as to the opening up of other coal fields. At the moment of writing there is, so far as I know, only one place in the interior of British Columbia (outside the Crow's Nest Pass) where coal of a suitable quality for making a first-class smelting coke has been found, viz., on the north fork of the Kettle River. The analysis was given under the heading of "steam fuel." If this deposit should be large enough the quality is all right, and the location being only about 100 miles from the Boundary District, would give it an advantage of at least \$1.50 in cost of transportation and would save 40 cents a ton in treating the ore.

The same coal would serve any smelters that might be erected further west in the event of no coking coal being found in the Similkameen or Nicola Valleys, where it is certain there are valuable copper ores and at least three promising camps—Twenty-mile Creek, Copper Mountain and Aspen Grove.

For any relief in the cost of fuel in East Kootenay